

What is claimed is:

1. A coating composition in two parts, the first part comprising a solution in organic solvent of a graft-reaction product of a fluoroelastomer and a grafting agent grafted to said fluoroelastomer via a primary amine group, said grafting agent containing at least one hydroxyl group, and the second part comprising a curing component that contains at least one isocyanate group or a group bearing an isocyanate group, and a hydroxyl-reactive crosslinking group.
2. A coating composition according to claim 1 wherein said fluoroelastomer is selected from the group consisting of a polymer of 1,1-dihydroperfluorobutyl acrylate; copolymer of vinylidene fluoride and chlorotrifluoroethylene; copolymer of vinylidene fluoride and hexafluoropropylene; copolymer of vinylidene fluoride and hypentafluoropropylene; copolymer of tetrafluoroethylene and propylene; terpolymers of vinylidene fluoride, hexafluoropropylene, and tetrafluoroethylene; terpolymer of vinylidene fluoride, tetrafluoroethylene and perfluorovinyl ether; terpolymer of vinylidene fluoride, tetrafluoroethylene, and propylene; and a terpolymer of vinylidene fluoride and hypentafluoropropylene and tetrafluoroethylene .
3. A coating composition according to claim 1 wherein said grafting agent is selected from the group consisting of monomeric, oligomeric or polymeric: hydroxyamine, hydroxyalkylamine, aminocarboxylate , aminosilane, and aminothiols.
4. A coating composition according to claim 1 wherein the grafting agent is an organosilane which contains an isocyanate group and another group selected from the group consisting of halogen, hydroxy, alkoxy, acyloxy group, epoxy group, mercapto group; a mercapto-containing group, vinyl group, vinyl-containing group, another isocyanate group, another isocyanate-containing group, an ureido group, an ureido-containing group, an imidazole group, or an imidazole-containing group.

5. A coating composition according to claim 1 wherein said grafting agent has a molecular weight of less than 1000.
6. A coating composition according to claim 1 wherein said grafting agent is selected from the group consisting of 3-amino-1-propanol, 2-(2-aminoethylamino)ethanol, and aminopropyl silane triol.
7. A coating composition according to claim 6 wherein the amount of grafting agent incorporated in relation to the weight of fluoroelastomer is from 1 to 20 wt. percent.
8. A coating composition in two parts, the first part comprising a solution in organic solvent of a graft-reaction product of a fluoroelastomer and a grafting agent which comprises one ethylenic unsaturated group and at least one active hydrogen-containing group, the second part comprising a di- or polyisocyanate curing component
9. A coating composition according to claim 8 wherein said grafting agent is selected from the group consisting of 2-hydroxyethyl (meth)acrylate, 1-hydroxypropyl (meth)acrylate, 2-hydroxypropyl (meth)acrylate, 2-hydroxyethyl vinyl ether, N-methylol(meth)acrylamide, methacrylic acid, and maleic anhydride.
10. A coating composition according to claim 1 wherein the solvent is selected from the group consisting of ketones, ethers, esters, nitro compounds, and mixtures thereof.
11. A coating composition according to claim 1 wherein said di- or polyisocyanates is an aliphatic, cycloaliphatic or aromatic di- or polyisocyanate
12. The coating composition of claim 11 wherein said di- or polyisocyanates is selected from the group consisting of as 1,6-hexamethylene diisocyanate; 1,8-octamethylene diisocyanate; 1,12-dodecamethylene diisocyanate; 2,2,4-trimethylhexamethylene diisocyanate, and the like; 3,3'-diisocyanatodipropyl ether; 3-isocyanatomethyl-3,5,5'-trimethylcyclodextryl isocyanate; hexamethylene diisocyanate;

4,4'-methylenebis(cyclohexyl isocyanate); cyclopentylene-1,3-diisocyanate; cyclodexylene-1,4,-diisocyanate; methyl 2,6-diisocyanatocaprolate; bis-(2-isocyanatoethyl)-fumarate; 4-methyl-1,3-diisocyanatocyclohexane; trans-vinylene diisocyanate; 4,4'-methylene-bis(cyclohexylisocyanate); methane diisocyanates; bis-(2-isocyanatoethyl) carbonate ; N,N',N''-tris-(6-isocyanatohexamethylene)biuret, toluene diisocyanates; xylene diisocyanates; dianisidine diisocyanate; 4,4'-diphenylmethane diisocyanate; 1-ethoxy-2,4-diisocyanatobenzene; 1-chloro-2,4-diisocyanatobenzene; bis(4-isocyanatophenyl)methane; tris(4-isocyanatophenyl)methane; naphthalene diisocyanate; 4,4'-biphenyl diisocyanate; m-phenylene diisocyanate; p-phenylene diisocyanate; 3,3'-dimethyl-4,4'-biphenyl diisocyanate; p-isocyanatobenzoyl isocyanate; tetrachloro-1,3-phenylene diisocyanate; 2,4-toluene diisocyanate, 2,6-toluene diisocyanate, 4,4'-isocyanate, bis-[isocyanatophenyl] methane polymethylene poly(phenyl isocyanate), isophrone diisocyanate, mixtures thereof .

13. The coating of claim 1 wherein said di- or polyisocyanate is present at from 3 to 30 wt. parts per 100 wt. parts of said fluoroelastomer.

14. The coating of claim 1 wherein said di- or polyisocyanate is present at from 8 to 15 wt. parts per 100 wt. parts of fluoroelastomer.

15. A method of coating an elastomer substrate comprising applying a coating composition to the surface of the substrate wherein the coating composition comprises the coating composition of claim 1.

16. A coating composition in two parts, the first part comprising a solution in organic solvent of a graft-reaction product of a fluoroelastomer and a grafting agent graft-linked to said fluoroelastomer via a primary amine group, said grafting agent containing at least one hydroxyl, carboxyl or thiol group, and the second part comprising a curing component containing at least two groups reactive with a hydroxyl, carboxyl or thiol group.

17. A coated, vulcanized elastomer coated with the cured residue of a solution comprising an organic solvent, a graft-modified fluoroelastomer grafted to a grafting agent, the grafting agent comprising a graft-linking group and at least one active hydrogen-bearing group, said cured residue formed by curing said graft-modified fluoroelastomer with a curing component that contains at least two groups reactive to active hydrogen-bearing groups to crosslink said functionalized fluoroelastomer.

18. The coated elastomer of claim 17 wherein said fluoroelastomer is selected from the group consisting of a polymer of 1,1-dihydroperfluorobutyl acrylate; copolymer of vinylidene fluoride and chlorotrifluoroethylene; a copolymer of vinylidene fluoride and hexafluoropropylene; a copolymer of vinylidene fluoride and hydropentafluoropropylene; a copolymer of tetrafluoroethylene and propylene; a terpolymer of vinylidene fluoride, hexafluoropropylene, and tetrafluoroethylene; a terpolymer of vinylidene fluoride, tetrafluoroethylene and perfluorovinyl ether; a terpolymer of vinylidene fluoride, tetrafluoroethylene, and propylene; and a terpolymer of vinylidene fluoride, hydropentafluoropropylene and tetrafluoroethylene.

19. The coated elastomer of claim 17 wherein said curing agent contains at least one isocyanate group or a group bearing an isocyanate group, and a group reactive to an active hydrogen-bearing group.

20. The coating of claim 19 wherein said active hydrogen-bearing group is a hydroxyl or carboxyl group.

21. The coated elastomer of claim 17 wherein wherein said grafting agent is selected from the group consisting of monomeric, oligomeric or polymeric: hydroxyamines, hydroxyalkylamines, aminocarboxylates, hydroxy mercaptans, aminosilanol, aminothiols, mercaptothiols, and mercaptosilanes.

22. The coated elastomer of claim 17 wherein said grafting agent is a mercaptosilane selected from the group consisting of include γ -mercaptopropyltrimethoxysilane, γ -mercaptopropyltriethoxysilane, γ -mercaptopropylmethyldimethoxysilane, and γ -

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mercaptopropylmethyldiethoxysilane.